REMARKS

The present application was filed on November 26, 2003 with claims 1-20, all of which remain pending. Claims 1, 15 and 20 are the independent claims.

Claims 1, 3-9, 11, 12, 15, 17 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0085560 (hereinafter "Cathey") in view of U.S. Patent Application Publication No. 2003/0188198 (hereinafter "Holdsworth").

Claims 2, 10, 13, 14, 16, 18 and 19 are rejected under §103(a) as being unpatentable over Cathey and Holdsworth in view of other references.

In this response, Applicants respectfully traverse the §103(a) rejections. Applicants respectfully request reconsideration of the application in view of the remarks to follow.

With regard to the §103(a) rejection over Cathey and Holdsworth, Applicants submit that the Examiner has failed to establish a proper *prima facie* case of obviousness of claims 1, 3-9, 11, 12, 15, 17 and 20 in that the cited references, even if assumed to be combinable, fail to teach or suggest all the claim limitations, and in that no cogent motivation has been identified for combining the references or modifying the reference teachings to reach the claimed invention.

Independent claim 1 is directed to a method of generating a representation of an access control list. The method includes the steps of determining a plurality of rules of the access control list, with each of at least a subset of the rules having a plurality of fields and a corresponding action, and processing the rules to generate a multi-level tree representation of the access control list, with each of one or more of the levels of the tree representation being associated with a corresponding one of the fields. The claim further recites that at least one level of the tree representation other than a root level of the tree representation comprises a plurality of nodes, with at least two of the nodes at that level each having a separate matching table associated therewith.

Thus, in the claimed arrangement, a given non-root level of a tree representation of an access control list comprises two or more nodes that have separate matching tables. An illustrative embodiment of an arrangement of this type can be seen in FIG. 3 of the drawings, where each of a plurality of nodes associated with Level 2 of the tree representation 300 includes a separate matching table, with the separate matching tables being denoted 310-1, 310-2, . . . 310-7. Level 1 of this tree representation is the root level. This approach provides considerable advantages relative to conventional arrangements, such as the per-field LPM approach, which requires the use of a separate

matching table for each field of an ACL rule set. See the specification at, for example, page 7, line 12, to page 9, line 24.

The Examiner in formulating the §103(a) rejection argues that each and every limitation of claim 1 is met by the collective teachings of Cathey and Holdsworth. Applicants respectfully disagree. The collective teachings of these references fail to meet at least the above-noted limitations of claim 1 relating to generating a multi-level tree representation of an access control list, with each of one or more of the levels of the tree representation being associated with a corresponding one of the fields, and with at least one level of the tree representation other than a root level of the tree representation comprising a plurality of nodes, with at least two of the nodes at that level each having a separate matching table associated therewith. The Examiner acknowledges with reference to the decision tree shown in FIG. 5B of Cathey that such an arrangement does not teach or suggest multiple nodes at a given non-root level having separate matching tables as recited. See the final Office Action at page 4, first paragraph. This is further apparent from the teachings in paragraph [0064] of Cathey, which indicate that each of the leaves is coupled to the root "via a unique set of linked branches."

Nonetheless, the Examiner argues that the missing teachings are shown in paragraph [0048] of Holdsworth. See the final Office Action at page 4, second paragraph. However, Applicants note that the relied-upon portion of Holdsworth does not teach or suggest generation of a multi-level tree representation of an ACL, but to the contrary discloses that each message topic in a tree where each node corresponds to a different topic can have an associated ACL that determines who is able to publish or subscribe on that topic. Thus, Holdsworth does not teach the recited generation of a multi-level tree representation of an ACL, but instead the use of a separate ACL for each node of a tree of message topics. As the Examiner has acknowledged, the decision tree shown in FIG. 5B of Cathey does not teach a multi-level tree representation in which two or more nodes at a given level of the tree each have separate matching tables associated therewith.

The Examiner at page 2, fourth paragraph, of the final Office Action further indicates that the Holdsworth reference "is merely relied upon to show separate matching ACL tables." However, this is not what the relied-upon portion of Holdsworth shows. To the contrary, and as indicated above, paragraph [0048] of Holdsworth relates to an arrangement, such as tree structure 10 as shown in FIG. 2 of Holdsworth, where the nodes correspond to topics, and where each such topic has at least one associated ACL that determines who is able to publish or subscribe on that topic. The claimed

invention, as set forth in claim 1, is directed to a method of generating a multi-level tree representation of an ACL. This is fundamentally distinct from the relied-upon Holdsworth arrangement in which a tree structure of topic nodes has one or more ACLs associated with each node. To put it in more simple terms, the claimed invention relates to a tree representation of a given ACL, while the Holdsworth arrangement relates to a tree structure that includes topic nodes each of which is associated with a different one of a plurality of ACLs. The tree structure in Holdsworth is clearly not a tree representation of an ACL, and accordingly is not directly relevant to a claim that is directed to a method of generating a tree representation of an ACL.

It was mentioned previously that the decision tree shown in FIG. 5B of Cathey does not meet the claim limitation regarding at least one level of the tree representation other than a root level having a plurality of nodes with at least two of the nodes at that level each having a separate matching table associated therewith. The Holdsworth arrangement fails to supplement this deficiency of Cathey, as it too fails to teach or suggest a tree representation of an ACL in which at least one level of the tree representation other than a root level has a plurality of nodes with at least two of the nodes at that level each having a separate matching table associated therewith. Holdsworth instead discloses a tree structure of topics with each topic having at least one separate ACL. See, for example, the Holdsworth tree structure as shown in FIG. 4, where the ACLs associated with each topic are "displayed by activating the ACL button 134 at a node of interest," as described in paragraph [0102]. Thus, Holdsworth provides no teaching whatsoever regarding how to generate a multi-level tree representation of an ACL. In fact, it has nothing at all to do with generating a representation of an ACL, and does not attempt to use its tree structure to represent an ACL. Again, what Holdsworth shows is a tree structure where each node has one or more ACLs associated therewith.

Accordingly, the collective teachings of Cathey and Holdsworth fail to meet the limitations of claim 1.

The Examiner further argues that it would be obvious to use the ACL of Holdsworth in the programmable packet processor of Cathey. However, as noted above, Holdsworth teaches to associate a separate ACL with each node of a tree of message topics. Such an arrangement appears to be incompatible with the packet processing approach of Cathey, and accordingly one skilled in the art would not be motivated to apply the Holdsworth teachings to Cathey. For example, in applying Holdsworth to Cathey, would one associate a separate ACL with each of the nodes of the decision

tree of FIG. 5B? This would appear to unnecessarily complicate the Cathey decision tree arrangement. Moreover, the Cathey reference at paragraph [0064] noted above teaches that each of the leaves of the FIG. 5B decision tree is coupled to the root "via a unique set of linked branches," which is believed to be a direct teaching away from the recited use of separate matching tables for at least two different nodes at the same non-root level of a tree representation.

The Examiner argues that the statement in Cathey to the effect that each of the leaves of the FIG. 5B decision tree is coupled to the root "via a unique set of linked branches" does not teach away from the claimed use of separate matching tables at two nodes of a non-root level of a tree representation of an ACL. See the final Office Action at page 2, second to last paragraph. However, one can see with reference to FIG. 5B that the implication of the statement in Cathey is that there is only a single branching that occurs at each node, and hence none of the nodes have separate matching tables. This is in contrast to, for example, the above-noted illustrative embodiment shown in FIG. 3 of the present application, where each Level 2 node 304 of the tree representation 300 comprises a separate matching table 310.

It is therefore believed that independent claim 1 is not obvious in view of the proposed combination of cited references.

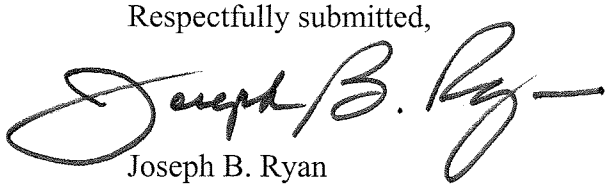
Independent claims 15 and 20 are believed allowable for reasons similar to those identified above with regard to independent claim 1.

Dependent claims 2-14 and 16-19 are believed allowable for at least the reasons identified above with regard to their respective independent claims. The additional references cited by the Examiner fail to overcome the fundamental deficiencies of Cathey and Holdsworth as applied to the independent claims.

In view of the above, Applicants believe that claims 1-20 are in condition for allowance, and respectfully request withdrawal of the stated rejections.

As indicated previously, a Notice of Appeal is submitted concurrently herewith.

Respectfully submitted,



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Enclosure(s): Notice of Appeal